



Applying Fire Regime Condition Class (FRCC) in Fuels Treatment Reporting



Materials needed to understand this powerpoint:

- Chapter 3 of FRCC Guidebook (downloadable at www.FRCC.gov)
- Reference value tables (above website, select “Documents”, “FRCC documents”, “PNVG Descriptions”, “Reference Condition Summary Tables”, select both “Western US Shrubland” and “Western US Forest”)
- You will also need to have a prior understanding of the FRCC definitions and methods, specifically the standard landscape method



Objectives of this powerpoint:

- Review reference values and landscape FRCC
- Review NFPORS data fields for FRCC
- Review previous stand FRCC assessment tool
- Walk through examples of revised stand FRCC determination



What are the basic components of FRCC evaluation using the Standard Landscape Method?

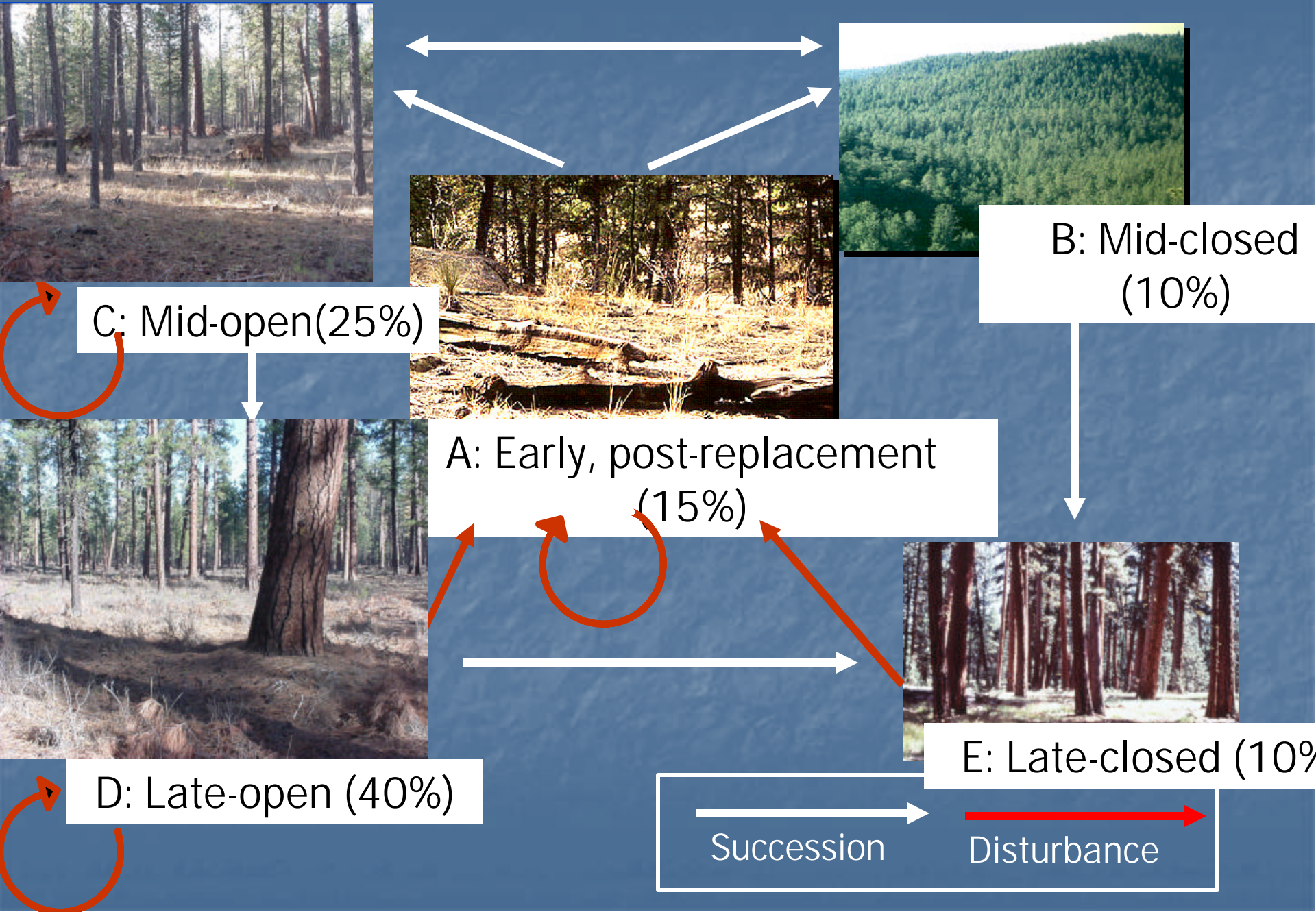
- Reference Values

1. Veg-fuel class proportions
2. Fire frequency/severity

- Current Values

1. Veg-fuel class proportions
2. Fire frequency/severity

The FRCC Standard 5 Box Model (P. Pine/D-fir example)



The FRCC Calculation

FRCC

Equally weighted



Departure in Vegetation

- seral stages
- composition

Departure in Fire

- frequency
- severity

Treatment Reporting

- NFPORS serves as the national database for WUI and non-WUI fuels treatment reporting
- The average treatment unit reported in NFPORS is approximately 35 acres; this is stand scale
- FRCC is an ecological measure that depicts fire regime and vegetation departure for much larger areas that are landscape scale
- Condition class of stands can be determined once a landscape FRCC is calculated

[National](#): [DOI](#): [BLM](#): [Arizona Region](#): [Arizona Strip](#)

Record Condition Class Observation	Administrative Tasks																
<table><tr><td>Treatment unit name</td><td><input type="text" value="Nixon Corner Burn"/></td></tr><tr><td>Area (acres)</td><td><input type="text" value="285"/></td></tr><tr><td>Fire regime</td><td><input type="text" value="II"/></td></tr><tr><td>* Observation Date (m/d/yyyy)</td><td><input type="text" value="May"/> <input type="text" value="5"/> <input type="text" value="2004"/></td></tr><tr><td>* Condition class 1</td><td><input type="text"/> %</td></tr><tr><td>* Condition class 2</td><td><input type="text"/> %</td></tr><tr><td>* Condition class 3</td><td><input type="text"/> %</td></tr><tr><td colspan="2"><input type="button" value="Cancel"/> <input type="button" value="Save"/></td></tr></table>	Treatment unit name	<input type="text" value="Nixon Corner Burn"/>	Area (acres)	<input type="text" value="285"/>	Fire regime	<input type="text" value="II"/>	* Observation Date (m/d/yyyy)	<input type="text" value="May"/> <input type="text" value="5"/> <input type="text" value="2004"/>	* Condition class 1	<input type="text"/> %	* Condition class 2	<input type="text"/> %	* Condition class 3	<input type="text"/> %	<input type="button" value="Cancel"/> <input type="button" value="Save"/>		<p>Quick Links</p> <p>[Reports]</p> <p>[New Project] [New Activity] [New Treatment Unit]</p> <p>[View Projects] [View Activities] [View Treatments] [View Treatment Units]</p>
Treatment unit name	<input type="text" value="Nixon Corner Burn"/>																
Area (acres)	<input type="text" value="285"/>																
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* Condition class 1	<input type="text"/> %																
* Condition class 2	<input type="text"/> %																
* Condition class 3	<input type="text"/> %																
<input type="button" value="Cancel"/> <input type="button" value="Save"/>																	

Unit area

Breakdown of Condition Class

Inputting a new or updated FRCC observation

Save

Last modified: 11/25/2003 by USDA User

Condition Class changes tracked through time

Fire Regime Condition Class Stand Worksheet



Landscape Project

Reg Code(1): JB12 Proj Code(2): Juniper1 Proj Num(3): 1
 Char Dt(4): 01/22/2004 Landscape Method(5): Standard/Scorecard
 Examiner Name(6): jsmith@email.gov Area(7): 60 acres/hectares

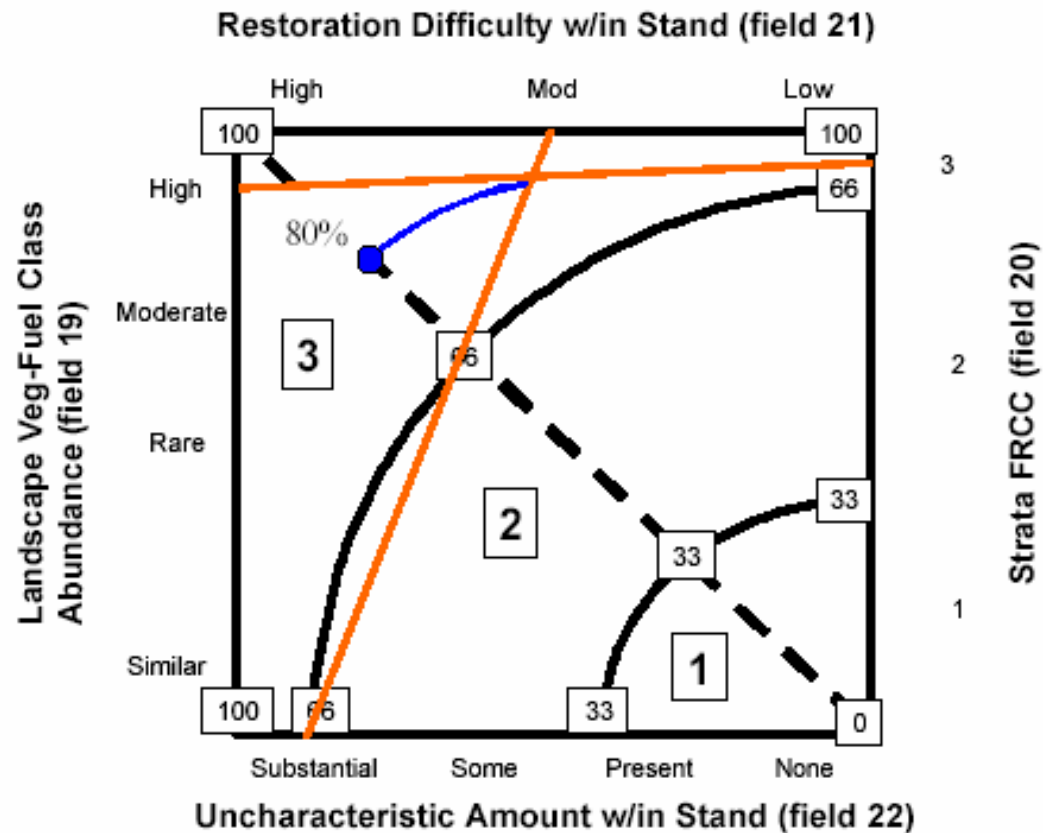
Stands	1	2	3	4	5
PNVG Code field 25 on Standard Landscape field 19 on Landscape Scorecard	WSAG2				
Strata Num (8)	1				
Stand Code (9)	BLM1				
Xwalk Code 1 (10)	NFPO1				
Xwalk Code 2 (11)	BLMX				
Stand Name (12)	JUNTHIN1				
Latitude (13)	85.62891				
Longitude (14)	94.24110				
Datum (15)	WGS84				
Photo (16)	C:/FRCC/PHOTOS				
Photo Date (17)	08/15/2003				
Veg-Fuel Class (18)	UFUS				
VFC Abundance (19) field 81 on Standard Landscape or estimate	HIGH				
Strata FRCC (20) field 88 on Standard Landscape field 46 on Landscape Scorecard	3				
Restoration Difficulty (21) Low, Moderate, High	2				
Uncharacteristic Amount (22) None, Present, Some, Sub- stantial	3				
Stand FRCC (23) from Graph 1	3				
Stand FRCC Departure (24) from Graph 1	80				

Please email your comments and suggestions to
 Doug_Havlin@blm.gov or whann@rs.fed.us

"FRCC Stand Scorecard Worksheet" Version 1.0.5 (2/26/2004)

Stand Fire Regime Condition Class

Stand Fire Regime Condition Class - Graph 1



Fire Regime Condition Class Stand Worksheet



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"FRCC Stand Scorecard Worksheet" Version 1.0.5 (2/26/2004)

Revised Stand Assessment Tool

- The Stand Scorecard tool shown in prior slides is being discontinued
- In its place, a new stand-level tool is built into the Standard Landscape Method

Revised Stand Assessment Tool

- Uses the “relative amount” classification built into the Standard Landscape Method
- Considers whether the relative amount of a given veg-fuel class is trace, underrepresented, similar, overrepresented, or abundant when compared against a reference value
- Assigns Condition Class 3 to all uncharacteristic vegetation-fuel classes

Fire Regime Condition Class Standard Landscape Report - StratumData

Registration Code: ATST Project Code: INTNSWGP Project Number: 1 Char Date: 10/03/2002 Strata Num: 2
 Strata Code: SPFI Strata Name: Date: 10/03/2002 BpLU: SPFI1 (1) Lifeform: CF Strata Comp: 70
 Species: ABLA PICO XETE VAGL Local BpLU: Landform: GMF Slope: STEEP Insol: HIGH
 Low Elev: 8000 High Elev: 6000 Feet Lat: 47.0275243 Lon: 114.0062026 Datum: WGS84
 Ref Freq: 100 Curr Freq: 100 Nat Sev: 60 Cur Sev: 90
 Ref Comp Src: T Cur Comp Src: V Nat Amer Burn: W B/C Class Break: 35 D/E Class Break: 35



Vegetation-Fuel Classes

Code	Upper Layer Lifeform	Majority Size	Closure	Dominant Species				Fuel Model	Ref Comp	Cur Comp	Sim	Diff	Relative Amount	Stand FRCC	Stand Depart	Acres Depart from Reference
AESP	CONT	SEED	50	PICO	PSME	XETE	VAGL3	5	30	0	0	-100	TRACE	1	0	-2100
BMSC	CONT	POLE	60	PICO	ABLA	PSME	XETE	8	40	60	40	33	OVER REP	2	33	1400
CMSO	CONT	POLE	30	PICO	PSME	XETE	VAGL3	8	20	10	10	-50	UNDER REP	1	0	-700
DLSO									0	0	0	N/A				0
ELSC	CONT	LARG	80	ABLA	PSME	XETE		10	10	20	10	50	OVER REP	2	50	700
UTHV	HERB	LOWH	30	XETE					0	10	0	100	ABUNDANT	3	100	700
Total									100	100	60					

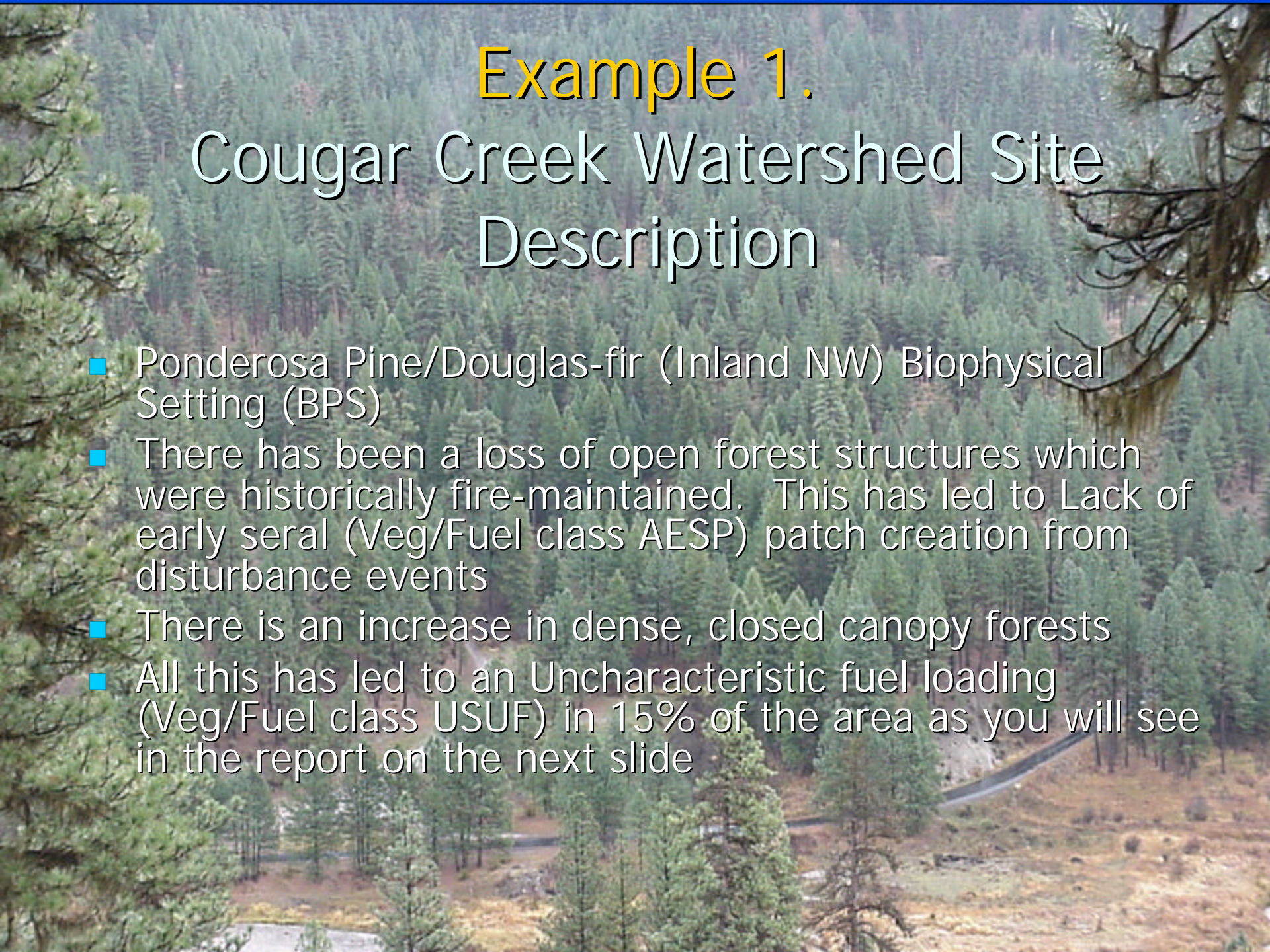
Current Veg-Fuel Departure: 40	Current Frequency Departure: 0	Current Frequency-Severity Departure: 16
Veg-Fuel Condition Class: 2 (34-66%)	Current Severity Departure: 33	Frequency-Severity Condition Class: 1 (0-33%)
Strata Fire Regime: III - Infrequent Mixed and Surface	Strata Departure: 40	Strata Fire Regime Condition Class: 2 (34-66%)

Crosswalk of Percent Difference, “Relative Amount” ratings, and Stand Condition Class

Departure from reference for veg-fuel class (seral stage) on landscape	Relative Amount Class	Stand Condition Class	Possible Mgmt Implication
If class is more negative than - 66% departed	Trace	1	Protect or Increase
If class is =- 66% to <- 33% departed	Under- represented	1	Protect or Increase
If class is =-33% and = +33% departed	Similar	1	Protect or Maintain
If class is > +33% to = +66% departed	Over- represented	2	Reduce
If class is > + 66%, or is an uncharacteristic class	Abundant	3	Reduce

Let's look at three examples of how to determine stand scale Condition Class

- Cougar Creek Watershed, Idaho
- Madera Canyon, Arizona
- Juniper Basin, Utah



Example 1.

Cougar Creek Watershed Site Description

- Ponderosa Pine/Douglas-fir (Inland NW) Biophysical Setting (BPS)
- There has been a loss of open forest structures which were historically fire-maintained. This has led to Lack of early seral (Veg/Fuel class AESP) patch creation from disturbance events
- There is an increase in dense, closed canopy forests
- All this has led to an Uncharacteristic fuel loading (Veg/Fuel class USUF) in 15% of the area as you will see in the report on the next slide

Fire Regime Condition Class Standard Landscape Report - StratumData

Registration Code: FPKR Project Code: Cougar1 Project Number: 1 Char Date: 11/12/2004 Strata Num: 2
 Strata Code: PIPO Strata Name: P Pine/Doug F Date: 11/12/2004 BpLU: PPDF1 (1) Lifeform: CF Strata Comp: 33
 Species: PIPO PSEUD7PHYSO CEVE Local BpLU: Landform: GMF Slope: MOD Insol: HIGH
 Low Elev: 3500 High Elev: 6500 Feet Lat: 0.0 Lon: 0.0 Datum: WGS84
 Ref Freq: 22 Curr Freq: 100 Nat Sev: 24 Cur Sev: 95
 Ref Comp Src: D Cur Comp Src: R Nat Amer Burn: C B/C Class Break: 35 D/E Class Break: 35

Vegetation-Fuel Classes

Code	Upper Layer Lifeform	Majority Size	Closure	Dominant Species	Fuel Model	Ref Comp	Cur Comp	Sim	Diff	Relative Amount	Stand FRCC	Stand Depart	Acres Depart from Reference
AESP	HERB	LOWH	40	CAGE2 CARU	1	15	5	5	-66	UNDER REP	1	0	-165
BMSC	CONT	POLE	70	PSEUD7 CAGE2	9	10	20	10	50	OVER REP	2	50	165
CMSO	CONT	POLE	30	PIPO CARU	2	25	15	15	-40	UNDER REP	1	0	-165
DLSO	CONT	LARG	30	PIPO PSEUD7	2	40	5	5	-87	TRACE	1	0	-577
ELSC	CONT	LARG	60	PSEUD7 PIPO	10	10	40	10	75	ABUNDANT	3	75	495
UFUS	CONT	LARG	80	PSEUD7 PIPO	10	0	15	0	100	ABUNDANT	3	100	247
Total						100	100	45					

Current Veg-Fuel Departure: 55

Veg-Fuel Condition Class: 2 (34-66%)

Strata Fire Regime: I - Frequent Surface and Mixed

Current Frequency Departure: 78

Current Severity Departure: 74

Strata Departure: 76

Current Frequency-Severity Departure: 76

Frequency-Severity Condition Class: 3 (67-100%)

Strata Fire Regime Condition Class: 3 (67-100%)

Vegetation-Fuel	Reference %	Current %	Similarity (lower of Ref or Cur)	VFC Difference: If Cur < Ref then (Cur - Ref)/Ref Else (Cur - Ref)/(Cur)	
A – Early	15	5	5	-66	-66/Underrep → Stand CC1
B – Mid Closed	10	20	10	+50	+50/Overrep → Stand CC2
C – Mid Open	25	15	15	-40	-40/Underrep → Stand CC1
D – Late Open	40	5	5	-88	-88/Trace → Stand CC1
E – Late Closed	10	40	10	+75	+75/Abundant → Stand CC3
U – Uncharacteristic	0	15	0	100 %	+ 100/Abundant → Stand CC3
Sum	100	100	50		
Departure (100-Sum Similarity)				50	
Vegetation-Fuel Condition Class (0-33 = 1; 34-66 = 2; 67-100 = 3)				2	

New Difference Calculation

There is a major difference between stand condition and landscape vegetation-fuel difference:

A vegetation-fuel class with a Relative Amount of trace (such as class D above) is a potential ecological hazard to the landscape. However, any one stand in that veg-fuel class may be in great condition



Open canopy, mid seral class (Class C)

- “Underrepresented” relative amount on landscape, so condition class 1
- Lack of this type is a hazard to the landscape, but this stand is in good condition; more of these kinds of stands are needed to improve landscape condition



Closed canopy, mid seral class (Class B)

- “Overrepresented” relative amount on landscape, so condition class 2



Open canopy, lateral class (Class D)

“Trace” relative amount on landscape, so condition class 1

Lack of this type is a hazard to the landscape, but this stand is in good condition; more of these kinds of stands are needed to improve landscape condition





How would you report this condition class change?

1. Pre-treatment unit (Class B – mid seral closed canopy) had overrepresented amount, so $CC = 2$.
2. Post-treatment unit (Class C – mid seral open canopy) had underrepresented amount, so $CC = 1$.

Landscape ____Cougar Creek Watershed_____

Biophysical Setting ____Ponderosa Pine/Douglas-fir_____

Stand Fire Regime = Landscape Fire Regime: _Fire Regime Group 1_

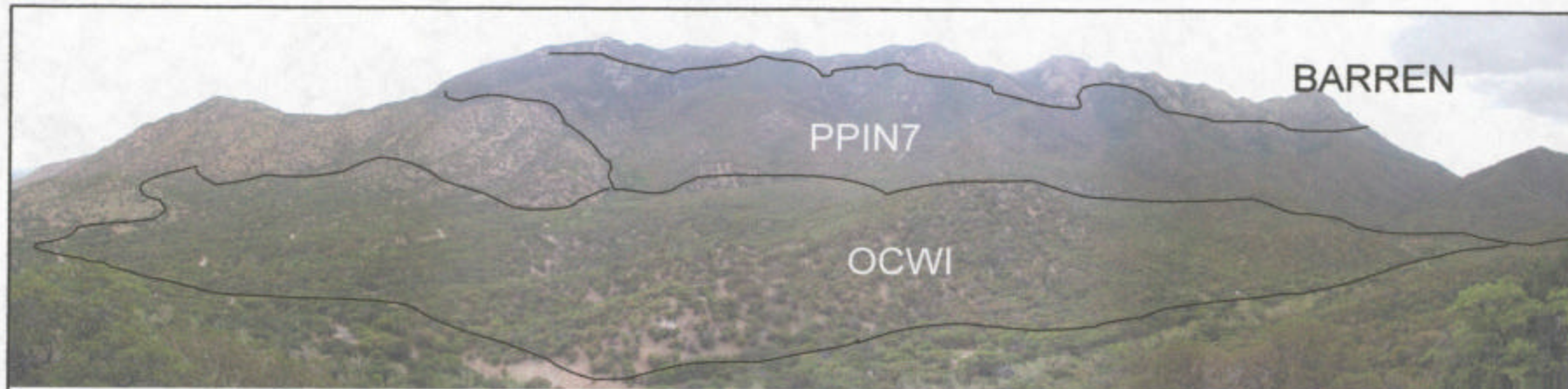
Stand condition: If Difference = 0, Then = 1; Else = Difference

Landscape Veg-Fuel Class	Difference from reference	Landscape Veg-Fuel Class Relative Amount	Stand Condition (0-100%)	Stand Condition Class
A (early seral)	- 66%	Under-represented	0	1
B (mid closed)	+ 50%	Over-represented	50	2
C (mid open)	- 40%	Under-represented	0	1
D (late open)	- 88%	Trace	0	1
E (late closed)	+ 75	Abundant	75	3
U (unchar. class)	+ 100%	Abundant	100	3

Example 2.

Madera Canyon, Arizona Site Description

- Ponderosa Pine (southwest) BPS
- There is a loss of open forest structure
- Lack of disturbance has moved area toward closed canopy forests (classes B and E)



Madera Canyon FRCC field trip – Stop 2
Madera East Landscape – Oak Conifer Woodland Interior
Southwest (OCWI) and Ponderosa Pine Southwest (PPIN7)
View from west to east



Homes embedded along road that follows the bottom



Madera East Landscape – Stop 2
Ponderosa Pine Southwest (PPIN7)



C-Mid development open forest



B-Mid development closed forest



A-Post-fire




D-Late development open forest



E-Late development closed forest

As in the previous example,
this landscape is deficient in
seral stages A, C, and D

Vegetation-Fuel	Reference %	Current %	Similarity (lower of Ref or Cur)	VFC Difference: If C < R then (C-R)/R Else (C-R)/(C)
A – Early	15	1	1	- 93/Trace → Stand CC1
B – Mid Closed	5	10	5	+ 50/Over → Stand CC2
C – Mid Open	15	4	4	- 73/Trace → Stand CC1
D – Late Open	60	5	5	- 92/Trace → Stand CC1
E – Late Closed	5	80	5	+ 94/Abundant → Stand CC3
U – Uncharacteristic	0		0	100 %
Sum	100	100	20	
Departure (100-Sum Similarity)	100-20 =			80
Vegetation-Fuel Condition Class (0-33 = 1; 34-66 = 2; 67-100 = 3)				3



New Difference Calculation

There is a major difference between stand condition and landscape vegetation-fuel difference:

A vegetation-fuel class that is a trace is a hazard to the landscape
However, any one stand in that veg-fuel class is in great condition

Fire Regime Condition Class (FRCC)
Similarity, Departure, Condition Class, & Difference Worksheet

Old Difference
Calculation

Landscape Madera Canyon

PPIN7

Potential Natural Vegetation (PNV)

Vegetation-Fuel	Reference %	Current %	Similarity (lower of Ref or Cur)	Difference (Cur-Ref) / (Cur + Ref)*100 Abundance*
A – Early	15	1	1	- 88/Rare
B – Mid Closed	5	10	5	+ 33/Moderate
C – Mid Open	15	4	4	- 58/Rare
D – Late Open	60	5	5	- 85/Rare
E – Late Closed	5	80	5	+ 88/High
U – Uncharacteristic	0		0	100 %
Sum	100	100	20	
Departure (100-Sum Similarity)	100-20=80			80
Vegetation-Fuel Condition Class (0-33 = 1; 34-66 = 2; 67-100 = 3)				3
Fire Frequency Severity	Reference	Current	Sim	Dep

Stand Fire Regime Condition Class – based on landscape Veg-Fuel conditions

Landscape (Project) Madera Canyon

Potential Natural Vegetation = PPIN7

Stand Fire Regime = Landscape Fire Regime FRG = I

Stand Identification Code	Landscape Veg-Fuel Class	Landscape Veg-Fuel Class Difference If $C < R$ Then $(C-R)/R$, Else $(C-R)/C$	Landscape Veg-Fuel class Relative Amount	Stand Condition	Stand Condition Class
24-12-013	E-Late Closed	+ 94%	Abundant	94	3
24-12-044	A-Early	- 93	Trace	0	1
24-12-102	B-Mid Closed	+ 50	Over-represented	50	2
24-12-133	C-Mid Open	- 73	Under-represented	0	1

•**Stand condition interpretation** – the higher the number the more this stand contributes to the difference of the vegetation-fuel class at the landscape scale. Difference values ≤ 0 indicate the stand no longer contributes.

•**Difference.** C – current veg-fuel class %; R – reference veg-fuel class %

•**Relative Amount.** "Trace" if Difference is $= -66\%$; "Under-represented" if Difference is $> -66\%$ and $= -33\%$
"Similar" if $> -33\%$ and $< 33\%$; "Over-represented" if $= 33$ to $< 66\%$; "Abundant" if $= 66\%$.

•**Stand condition (departure).** If Difference = 0, Then = 1; Else = Difference

•**Stand condition class.** "1" if Relative Amount = Similar, Trace or Under-represented; = "2" if = Over-represented; = "3" if Abundant

Landscape ____Madera Canyon_____

Biophysical Setting ____Ponderosa Pine (PPIN7)_____

Stand Fire Regime = Landscape Fire Regime: _Fire Regime Group 1_

Stand condition: If Difference = 0, Then = 1; Else = Difference

Landscape Veg-Fuel Class	Difference from reference	Landscape Veg-Fuel Class Relative Amount	Stand Condition (0-100%)	Stand Condition Class
A (early seral)	- 93%	Trace	0	1
B (mid closed)	+ 50%	Over-represented	50	2
C (mid open)	- 73%	Trace	0	1
D (late open)	- 92%	Trace	0	1
E (late closed)	+ 94%	Abundant	94	3

What about uncharacteristic classes??

Uncharacteristic classes are seral stages which did not occur in the natural regime. In this picture, a solid cheatgrass understory makes this an uncharacteristic class.

Because they did not occur in native communities, the veg-fuel class difference is calculated as $(\text{Cur} - \text{Ref}) / \text{Cur}$; since $\text{Ref} = 0$ then difference = + 100%

Therefore stands in uncharacteristic classes are **always assigned Condition Class 3.**




**Non-native grazing effects can
create an uncharacteristic class**




Noxious weed infestations, such as this stand of rush skeletonweed, are uncharacteristic classes





Type conversions, including conifers replacing aspen stands, is a common uncharacteristic class in the west





Advanced succession of pinyon and juniper
into shrub-steppe ecosystems is a common
uncharacteristic class in western
rangelands

Example 3.

Juniper Basin, Utah





Vegetation-Fuel	Reference %	Current %	Similarity (lower of Ref or Cur)	VFC Difference: If C < R then (C-R)/R Else (C-R)/(C)	Abundance
A – Early	15	5	5	- 67/Trace →	Stand CC1
B – Mid Closed	5	10	5	+ 50/Over →	Stand CC2
C – Mid Open	10	5	5	- 50/Under →	Stand CC1
D – Late Open	50	5	5	- 90/Trace →	Stand CC1
E – Late Closed	20	5	5	- 75/Trace →	Stand CC1
U – Uncharacteristic	0	70	0	+ 100/Abundant →	Stand CC3
Sum	100	100	25		
Departure (100-Sum Similarity)				75	
Vegetation-Fuel Condition Class (0-33 = 1; 34-66 = 2; 67-100 = 3)				3	

* Landscape deficient in all classes except B

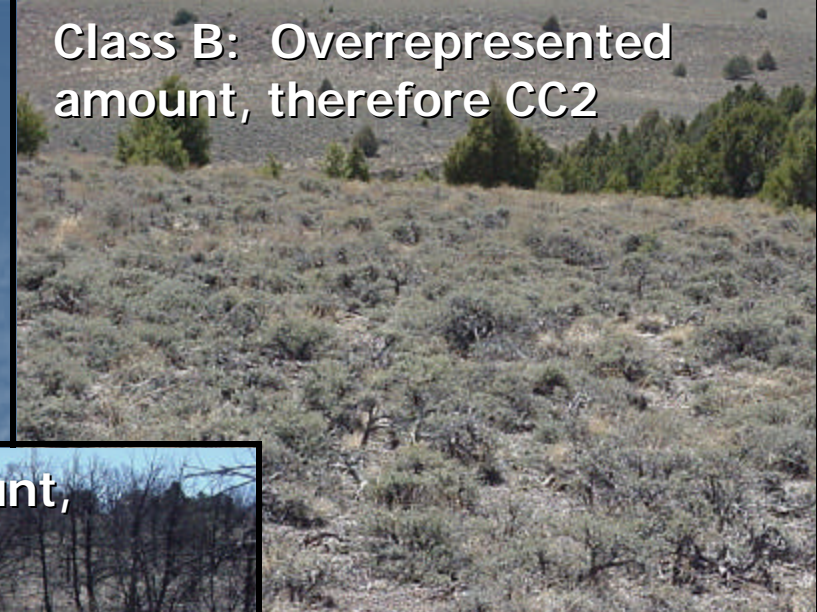
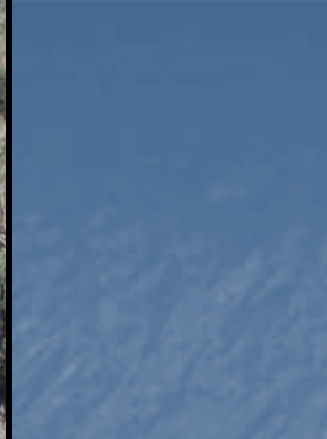
* Landscape dominated by uncharacteristic pinyon-juniper encroachment (Class U)

There is a major difference between stand condition and landscape vegetation-fuel difference:

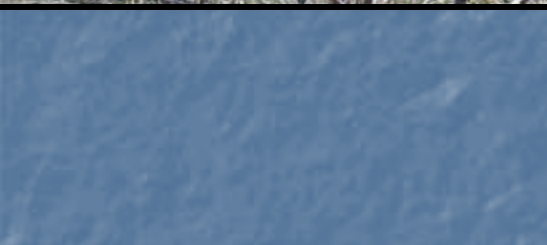
A vegetation-fuel class that is a trace is a hazard to the landscape
However, any one stand in that veg-fuel class is in great condition



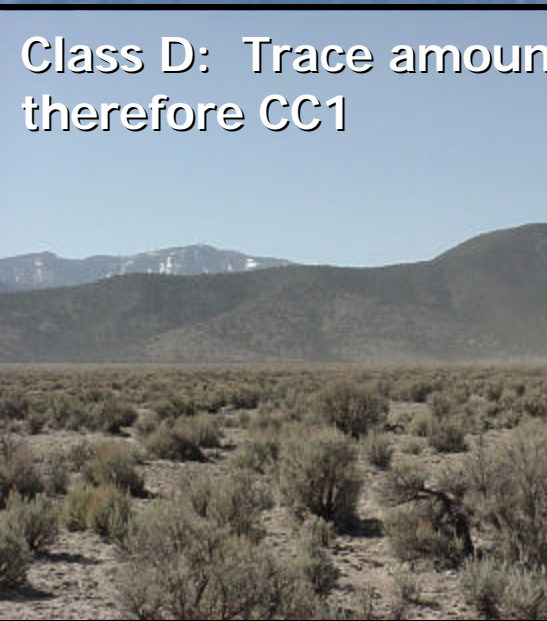
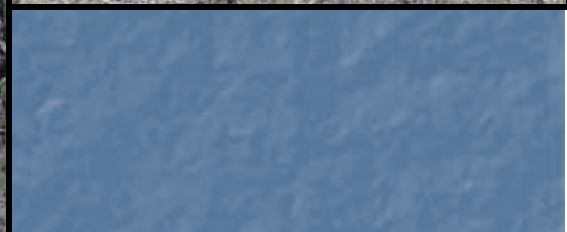
Class C: Underrepresented amount, therefore CC1



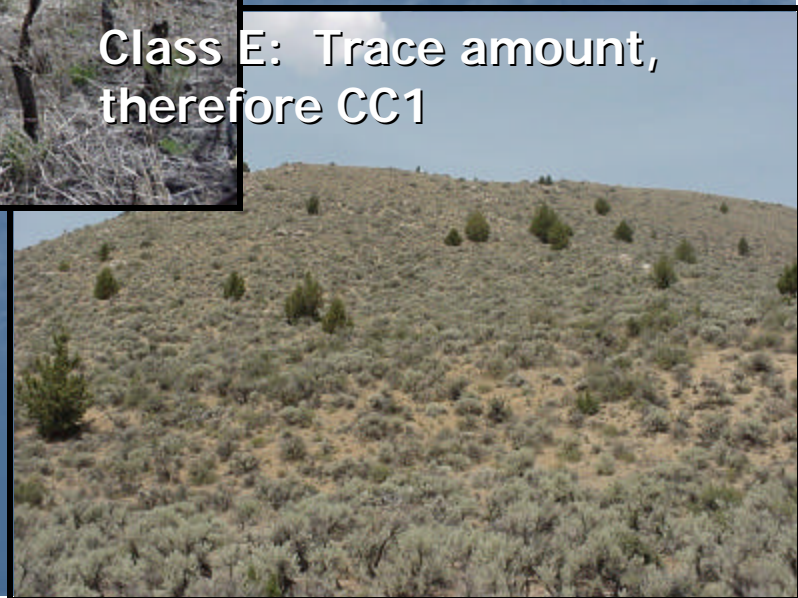
Class B: Overrepresented amount, therefore CC2



Class A: Trace amount, therefore CC1



Class D: Trace amount, therefore CC1



Class E: Trace amount, therefore CC1



**Most of landscape is dominated by this
uncharacteristic class**

- **70% of the area is in woodland condition due to advanced succession**
- **This is an uncharacteristic class which would not occur in the natural regime**
- **Because it is uncharacteristic, class has “Abundant” amount; therefore any stand in this veg-fuel class is assigned CC3**



How would you report condition class change for this treatment unit?

1. The pre-treatment unit was in an uncharacteristic class, so **pre-treatment CC = 3**.
2. The post-treatment unit is Class A, the early seral herbaceous community. This was **Trace in the relative amount**, so **post-treatment CC = 1**.

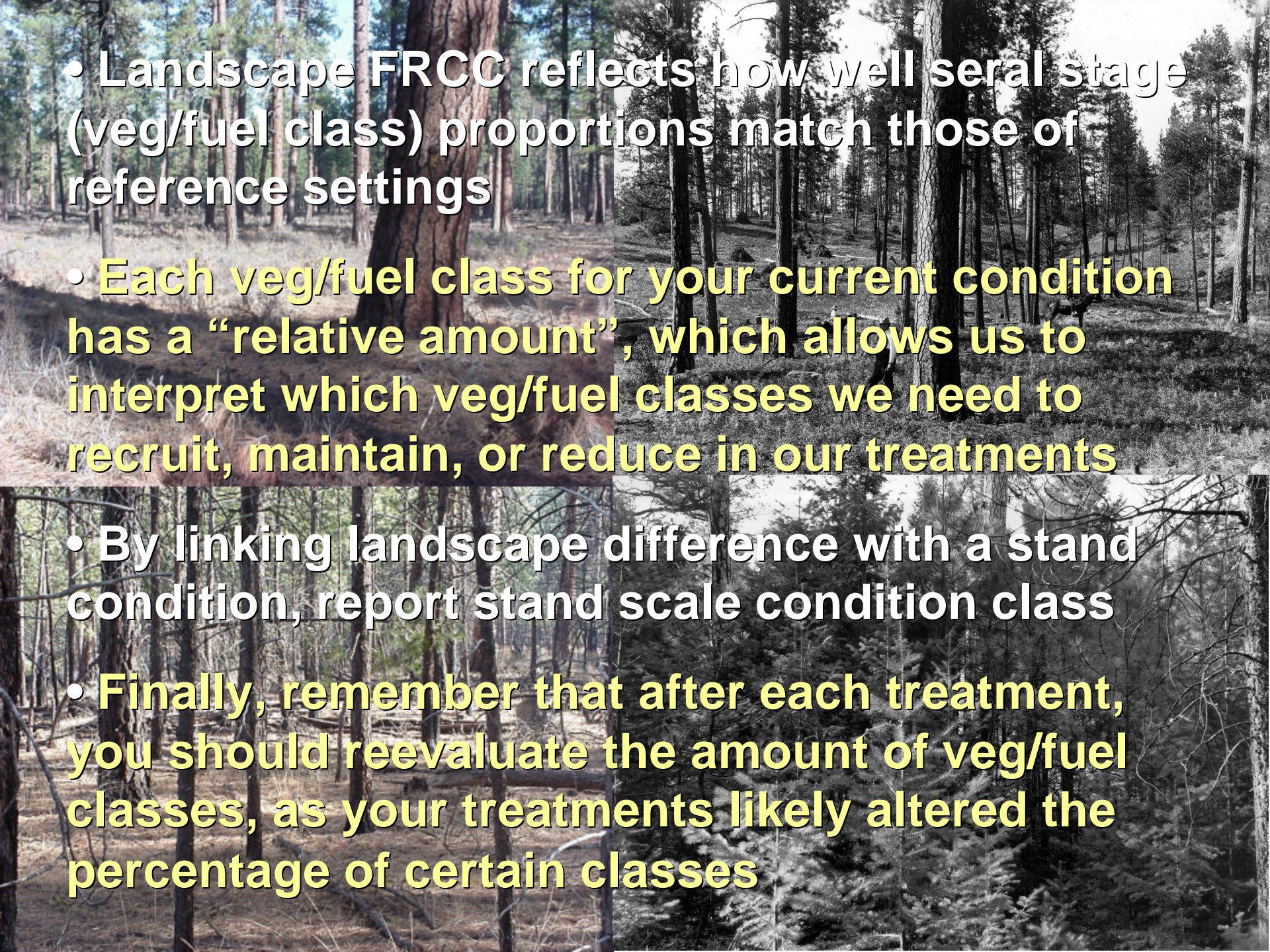
Landscape ____Juniper Basin Assessment Area_____

Biophysical Setting ____Wyoming Sagebrush w/ trees (WSAG2)____

Stand Fire Regime = Landscape Fire Regime: _Fire Regime Group 3_

Stand condition: If Difference < 0, Then = 1; Else = Difference

Landscape Veg-Fuel Class	Difference from reference	Landscape Veg-Fuel Class Abundance	Stand Condition (0-100%)	Stand Condition Class
A (early seral)	- 67%	Trace	0	1
B (mid closed)	+ 50%	Over-represented	50	2
C (mid open)	- 50%	Under-represented	0	1
D (late open)	- 90%	Trace	0	1
E (late closed)	- 75%	Trace	0	1
U (unchar. class)	+100%	Abundant	100	3

- 
- Landscape FRCC reflects how well seral stage (veg/fuel class) proportions match those of reference settings
 - Each veg/fuel class for your current condition has a “relative amount”, which allows us to interpret which veg/fuel classes we need to recruit, maintain, or reduce in our treatments
 - By linking landscape difference with a stand condition, report stand scale condition class
 - Finally, remember that after each treatment, you should reevaluate the amount of veg/fuel classes, as your treatments likely altered the percentage of certain classes

- If you have questions regarding this new stand level assessment method please contact the help desk at helpdesk@frcc.gov